

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number  
WO 2005/004515 A1

Reg

(51) International Patent Classification: H04Q 7/36  
(21) International Application Number: PCT/EP2003/006800

(22) International Filing Date: 27 June 2003 (27.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicants (for all designated States except US): TELECOM ITALIA S.P.A. [IT/IT]; Piza degli Affari, 2, I-20123 Milano (IT). PIRELLI & C. S.P.A. [IT/IT]; Via Gactano Negri, 10, I-20123 Milano (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): FERRATO, Marco [IT/IT]; Telecom Italia S.p.A., Via G. Reiss Romoli, 274, I-10148 Torino (IT). GIOVANARDI, Enrico [IT/IT]; Telecom Italia S.p.A., Via G. Reiss Romoli, 274, I-10148 Torino (IT). STOLA, Loris, Paolo [IT/IT]; Telecom Italia S.p.A., Via G. Reiss Romolo, 274, I-10148 Torino (IT). DELL'ANNA, Valeria [IT/IT]; Cefriel, Via Fucini, 2, I-20133 Milano (IT). LA PIANA, Alessandro [IT/IT]; Cefriel, Via Fucini, 2, I-20133 Milano (IT).

(74) Agents: GIANNESI, Pier, Giovanni et al.; Pirelli & C. S.p.A., Viale Sarca, 222, I-20126 Milano (IT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GI, GE, GH, GM, HN, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

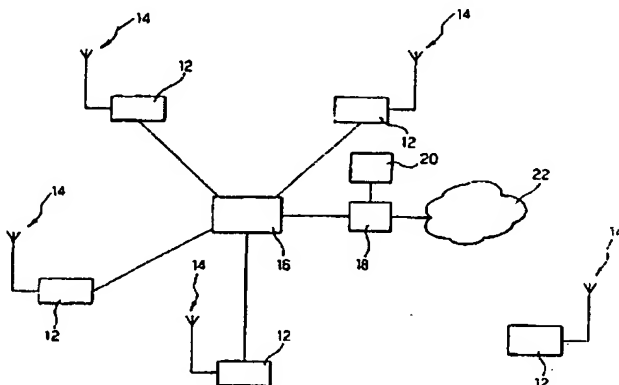
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CL, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GI, GM, HN, HU, ID, IL, IN, IS, JP, KE,

[Continued on next page]

(54) Title: A METHOD FOR CONFIGURING A COMMUNICATION NETWORK, RELATED NETWORK ARCHITECTURE AND COMPUTER PROGRAM PRODUCT THEREFOR



(57) Abstract: A communication network including a plurality (N) of antennas (14), is configured by: - including among the antennas (14) at least one (n) reconfigurable antenna adapted to serve communication traffic in a respective coverage area, the reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in the set defining a propagation path between the antenna (14) and a portion of the coverage area, - determining, for each direction in the set, at least one value of communication traffic and at least one attenuation value over the propagation path, and - selectively and independently allotting to each direction in the set a respective gain value as a function of at least one of the value of communication traffic and the attenuation value determined for that direction. The arrangement is adapted for use in communication networks such as second and third generation (3G) mobile communication networks employing electrically controllable antennas (14)



KG, KP, KR, KZ, LC, I.K, I.R, I.S, I.T, LU, I.V, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RI, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.